



BUSINESS PROCESS OPTIMISATION

INTEGRATION AND AUTOMATION

Abstract

This whitepaper discusses the role of Integration and Automation in Business Process Optimisation. It also provides business and technical considerations when applying these techniques in respect of Microsoft Dynamics and related products that Professional Advantage recommend and support.



Table of Contents

Introduction	3
Integration and Automation.....	3
Business Considerations.....	4
Technical Considerations	6
Integration.....	6
Automation	7
Tools Selection Methodology.....	8
Integration and Automation Tools.....	9
Application Tools – Dynamics GP	9
Application Tools – Dynamics AX	9
Application Tools – Dynamics CRM.....	10
Application Tools – Dynamics RMS.....	10
Application Tools – Microsoft SharePoint Server.....	10
Third Party Products.....	11
Professional Advantage Products.....	11
Middleware Tools.....	11
Business Process Automation Tools	11
Development Tools.....	12
Conclusion	13
Professional Advantage - Microsoft Group.....	14

Introduction

Continuous business optimisation and improvement initiatives are key to ensuring sustainability and competitiveness, especially in boom and bust periods. Rapid changes in the market place and increased competition constantly raise the pressure on organisations to survive and remain at the top.

Successful organisations always look at ways to boost operational efficiency, improve quality and implement cost savings measures. They strive for business processes that are efficient, accurate and repeatable.

Poor economic conditions see most organisations focus less on implementing new business systems and more on optimising existing systems. This is often achieved through automation of business activities and integration of business critical information.

This document describes differences between Integration and Automation and lays out business, technical and tools selection considerations that Professional Advantage applies for its clients in respect to Microsoft Dynamics and related products.

For the purposes of this document, it is assumed that the process optimisation is being sought through incremental improvements as opposed to re-engineering. Incremental improvements are lower risk, require less effort to implement and build value rather than only deliver on completion.

Integration and Automation

Integration and Automation are two terms that are often confused with each other and used interchangeably. In this paper we are creating our own definition in the context of business process optimisation.

Integration refers to data movements between two or more business systems with minimal if any human interaction. A typical example of integration is automatic movements of transactions from Accounts Payable to General Ledger within an ERP system like Dynamics GP. Integration may be achieved through a variety of mechanisms including text file transfer, web services and direct database manipulation. Another form of integration is achieved via a data warehouse where data from multiple sources is consolidated and used for supporting business decision making processes.

By contrast Automation refers to human interaction with business systems, typically related to information capture and storage or reporting. Automation is not limited to manipulation of transactional information. It is equally valid for business processes that create and manipulate unstructured information such as Sales Proposals or Procedure Manuals.

Tasks that are low value add and high volume, such as timesheet approval and notification activities, are often targeted for automation as it is easy to quantify the benefits.

Tasks that have a high component of human intervention and value add are often not considered for automation. However converting that human knowledge into system knowledge via automation can provide significant benefits to a business. For example standardising and automating budgeting and forecasting processes will improve information quality (reduced errors due to re-keying and manual calculations), reduce reliance on individuals and make information available to business in timely manner.

Business Considerations

There are a number of things that should be considered before embarking on a business optimisation project involving integration, automation or both. They may be thought of as a sanity check to help decide whether to pursue a particular project.

1. Business Drivers

Before starting any kind of business optimisation, the expected or desired business value to the organization must be clearly understood. The business value may be expressed in many ways. Financial cost benefit is common, but it may also be expressed in terms of achieving strategic goals such as turnaround time on customer transactions or in terms of needing to meet regulatory requirements such as OH&S. Project goals should be set to measure achievement of the expected or desired business value.

A common mistake when using a financial justification is to rely on saving a few hours here and there. Unless the saved hours are sufficient to be able to reduce your headcount, there is no actual cost saving. Instead the value to the business needs to be justified through benefits arising from alternative utilisation of the time saved or the ability to perform more of the same task with the same resources. In both cases this assumes that there is other work or tasks needing to be done.

2. Understand your Process (Integrate/Automate what you Know)

It is important that the process being optimised is fully understood. Knowledge of all the activities and tasks in the process is useful. However it is more important to know the context of the process. The context includes entry and end points, which include interactions with other processes, and the business transformations required in between such as calculations being performed or information being appended.

Within the context, individual tasks can be automated even if the current activities are not fully defined.

In some cases automation does not require programming a new tool. Having determined the context of the process an alternate use of existing tools may well be enough.

3. Phased Approach

Not every step in the process has to be automated. The final process can still involve some manual steps where human interaction provides added value.

Attempting to do too much at once increases the risks of being wrong and hides further potential gains. A phased approach allows the addition of more automation and integration as processes become better defined. A phased approach will also meet immediate and long term requirements while delivering incremental return on investment.

4. Work within your Maturity Levels

The maturity levels of an organisation are expressed in terms of four dimensions: technology, users' skills, culture and processes. Any project that does not address each dimension will fail.

It is essential to link technology and business processes. Technology should be looked at as an enabler but not a deliverer. Just installing a tool will not realise expected benefits. While designing a solution to process optimisation, the focus should be on business activities and people. No matter how brilliant a solution is technically if it is not linked to every day human activities it will not be used.

Similarly, a brilliant technical solution will not be used, if it requires skills that the intended users do not have. While this is obvious for automation tasks, it also applies to integration where maintenance and error correction may be required. Culture can represent the hidden roadblock. For example a real time integration will not be accepted in a culture that demands batch controls and reconciliations.

There are many techniques for managing the four dimensions in relation to a project. However at minimum you should have a risk identification and management plan and an adoption plan.

Technical Considerations

The following sections represent some best practices that if followed will avoid most of the common pitfalls in integration and automation projects.

Integration

- **Business Logic**
 - Configurable – the business logic should be maintainable via the business systems in preference to hard to understand configuration files and hard coding should be avoided. This allows the integration to be flexible in line with changing business needs.
 - Separated from Communications - the business logic should apply irrespective of what mechanism is used to transfer the data. This means that the integration will continue to work where for instance a text file transfer is replaced by web services.
- **Integrated Security**
 - Reference System Accounts - user accounts and passwords should not be hard coded nor stored in clear text in configuration files. The integration should not fail if you want to change a password.
- **Version Independence**
 - Use System Tools – the solution should be implemented using business system tools and APIs. Direct database interaction should be avoided. This minimises the risk of the integration ceasing to work after an upgrade.
- **Solution Maintainable / Supportable / Scalable**
 - Error Logs and Notifications - at a minimum the integration should alert system owners if there is a problem.
 - System Owner – every integration must have an owner responsible for its operation and error management.
 - Audit Trails - for monitoring and troubleshooting.
 - Performance - the integration is designed to operate at the volumes required plus room for growth.
 - Centrally Managed - especially where multiple integrations exist, having one place to manage all integrations is desirable.

Automation

- **Defined Scope and Context**
 - Start and End clearly defined – the task to be automated and the process it is part of, must have its entry and exit points clearly defined. This ensures that all circumstances are catered for and the automation produces consistent reliable results.
 - Interfaces with other processes and tasks defined.
- **Adoption Strategy**
 - Design, Communicate, Measure - automation is a process change and is often met with resistance. Proper design, communication with users and follow up measurement will enhance the prospects for success.
- **Capture Data as Early as Possible**
 - Garbage In – Garbage Out: the value of automating a task diminishes where it follows human tasks that increase the risk of data corruption.
- **Version Independence**
 - Use System Tools – the solution should be implemented using business system tools and APIs. Direct database interaction should be avoided. This minimises the risk of the automation ceasing to work after an upgrade.
- **Maintainable / Supportable / Scalable**
 - Transparency - automation steps should be well documented and provide an audit trail.
 - System Owner – every automation must have an owner who is familiar with how it fits in with the overall process or processes.

Tools Selection Methodology

There is no single approach to business optimisation that fits every organisation. Different business situations call for different solutions, each targeting a particular kind of problem. While a one-size-fits-all solution would be desirable, the inherent diversity of integration and automation challenges makes such a simplistic approach impossible.

The following list is provided as a checklist that can assist in selecting an approach that is right for your organisation:

1. Utilise Existing Systems

Research and find out what business systems and applications are already in place and the extent to which they used to their full potential. Sometimes additional training is all it takes. In other cases it may be just a matter of enabling modules or reconfiguring the software.

For example, the Microsoft Dynamics CRM platform is easily configurable to support a number of business processes; Windows SharePoint Services, part of Windows Server, can be used to automate information management and collaboration processes; the Microsoft SQL server comes with a suite of tools that can be used to implement integration and automation solutions.

2. Utilise Specialist Tools

Before starting a costly development project find out if there is a specialist tool available that meets the requirements. This might be to integrate two independent business systems, such as Dynamics GP and Dynamics CRM or a vertical module to provide a particular function. For example, Professional Advantage has released a number of add-on modules to Dynamics GP, AX and RMS that automate processes not covered by standard systems, such as AX Collections Manager, GP Email Pro™, Bank Pro™ or Retail Analytics and Merchandise Planning.

3. Utilise Middleware and/or Development Tools

If requirements cannot be met by existing systems or specialist tools then the use of middleware tools such as Scribe Insight or FlowCentric Business Process Manager. These tools often have connectors or adapters to simplify the effort to interface with your business systems.

Integration and Automation Tools

There is large number of integration and automation tools available in the market. In this section we list some of the tools currently available. Note that this is not an exhaustive list but reflects the tools Professional Advantage works with and can support for you.

Application Tools – Dynamics GP

- **eConnect** – server based set of development utilities and APIs that integrate external data sources with Dynamics GP
- **Integration Manager** – client based integration tool used to convert and transfer data from most database formats or desktop applications into Dynamics GP. Manual process used for initial set up and data migration
- **VBA Business Logic** – simple scripting language for automating simple procedures via macros or modifying appearances of Dynamics GP screens
- **Extender** - customisation and integration tool that can be used to modify Dynamics GP applications and import data into Microsoft Dynamics GP from external sources
- **Business Alerts** – tool used to monitor business data and send notification to business users when exceptions occur or conditions are met
- **Business Portal** –role based tailored access to key business functions and reports via a Web browser
- **Reporting tools** – Analysis Cubes for Excel (ACE) Business Intelligence Module, FRX Financial Reports, Report Writer, Smart Lists, Smart List Builder, Reporting Services, Excel, etc.

Application Tools – Dynamics AX

- **Application Integration Framework** - XML based integration framework for business to business and application to application integration
- **Enterprise Portal** - role based tailored access to key business functions and reports via a Web browser
- **Standard Import/Export features:**
 - Export at table level
 - Excel, CSV, Text format
 - Used for Initial Setup /Data Migration
 - Ability to create a template with field validations e.g. drop down of valid account types
- **Wizard Based Form Development** – tool used to modifying appearances of Dynamics AX screens
- **Reporting tools** – AX OLAP cubes , FRX Financial Reports, Reporting Services, Excel.

Application Tools – Dynamics CRM

- **Workflow** – based on Windows Workflow Foundation platform and used for automatic notifications, task assignments and approval workflows
- **Data Migration Manager** - integration tool used to convert and transfer data from most database formats or desktop applications into Dynamics CRM. Manual process used for initial set up and data migration
- **Web Services** - set of web services available for integration with outside data sources
- **CRM Import** – integration tool used to import data from most database formats or desktop applications into Dynamics CRM. Manual process used for initial set up and data migration
- **Reporting** – Online Inquiry/Custom Data Views, Export to Excel, Report Wizard, Reporting Services.

Application Tools – Dynamics RMS

- **Macros** - simple scripting language for automating simple procedures via macros or modifying appearances of Dynamics RMS screens
- **Reporting** - RMS Report Writer, Reporting Services, Excel.

Application Tools – Microsoft SharePoint Server

- **Business Data Catalogue** – enterprise SharePoint Server 2007 feature used for SharePoint integration with line of business applications, such as Dynamics applications (GP, CRM, RMS, AX), HR systems and similar
- **Data View Web Part** – used for consolidating and presenting information from line of business applications and SharePoint on a web page
- **Web Services** - set of web services available for integration with outside data sources
- **Workflows** – based on Windows Workflow Foundation platform and used for automatic notifications, task assignments, approval workflows and integration with other data sources
- **Reporting** – enterprise SharePoint Server 2007 features:
 - Performance Point used for advanced dashboards, balanced scorecards and analytic reports
 - Excel Services used for publishing Excel 2007 reports as web reports
 - Reporting Services used for authoring and publishing web reports
 - Report Builder – reporting services features used for ad-hoc reporting
 - KPI used for presenting key performance indicators from multiple data sources
 - Report Centre – special site configured for centralised location to access all business critical information

- **Office Integration** – out of box integration with Office Applications such as Outlook, Excel, Access, etc.

Third Party Products

Professional Advantage Products

- **Retail Analytics and Merchandise Planning (RAMP)** - Business Intelligence module for Dynamics RMS
- **Collections for GP and AX** – Collections management module fully integrated with standard Dynamics GP and AX modules
- **BankPro™** – module that interacts with banking software and provides EFT payments and bank statements upload and reconciliation; fully integrated with Dynamics GP modules
- **EmailPro™** – module that electronically distribute remittance advices, purchase orders and sales order processing documents; fully integrated with Dynamics GP modules
- **RMS ConnectPro** – product that provides real time integration between Dynamics RMS and Dynamics GP applications.

All Dynamics products have many third party add-ons, such as Atlas XL that provides read/write access to Dynamics AX via Excel interface.

Middleware Tools

- **Scribe Insight** – data migration and integration tool for ERP, CRM and other business applications such as Exchange or Contact Managers
- **Microsoft BizTalk** – integration tool for business to business and application to application integration.

Business Process Automation Tools

- **FlowCentric** – business process management tool for process automation and integration with line of business application such as Dynamics CRM or GP/AX.

Development Tools

- **Microsoft SQL Components:**
 - **Integration Services (SSIS)** - extraction, transform and load (ETL) tool that can be programmed to move information between a wide variety of electronic sources including SQL server, other compliant databases like Pervasive SQL, text files and Excel
 - **Reporting Services** – reporting tool that can be programmed to consolidate and display information from ODBC or OLEDB compliant electronic sources such as SQL Server, Oracle, etc
 - **Analysis Services** – analytics tool that can be programmed to consolidate data from multiple data sources and present to users in the form of a multidimensional data structure that support online analytical processing capabilities and ad hoc querying capabilities
 - **SQL Triggers, Views and Stored Procedures**
- **.NET Framework** – development platform for website integration, development of custom web services, wrappers, etc.
- **Windows Workflow Foundation** – development platform for custom workflows to be used in Dynamics CRM or SharePoint.

Conclusion

Continuous business optimisation has always been a key to success. It is important to define achievable goals and identify business benefits before embarking on any business optimisation project.

There is no silver bullet in selecting an approach that fits everyone. However there are a few general guidelines that everyone should follow:

- Understand your business drivers and processes
- Work within your maturity limitations and set achievable goals
- Re-use what you have in preference to build
- Ensure your solution conforms to best practices

Technology should be looked at as an enabler and not the solution. Do not limit your thinking to your Dynamics system, look across your processes. Even the most tightly controlled generic application such as ERP or CRM system can deliver completely different results for look-alike organisations. It is how you apply these applications to support your end to end business processes that matter.

Professional Advantage - Microsoft Group

Professional Advantage is a leading provider of business solutions that are focused on adding value, bottom-line results and improvement from performance to profit. Over 850 Australian and global organisations rely on Professional Advantage for its software implementation, support and services.

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